AMC LSE IRAQ
RDECOM SUMMARY REPORT
OCT 27, 2003

Purpose

- **Collect data to improve durability of tires (HETS, HMMWVs)**
- **Observe roads, terrain, vehicle loads, and mission profiles**
- **Develop information to improve durability/performance of HETS and HMMWVs**
- **Evaluate soldier modifications for protection including methodology and installation**

Observations

HET

- **Located 7000 HET tires in DRMO**
- **More than 2000 HET trailer tires were repairable (nails, small punctures, etc) or brand new**
  - **<2% of tires failures appear to be heat related**
- **Logistics support improving, HET replacement tires available**
- **HET OPTEMPO very high**
  - **3000miles/yr Conus vs. 3000-4000 miles/month operational**
  - **Mission profile substantially modified from original criteria**
  - **3 to 6 day missions (500-2000 miles) versus 300 miles/mission**
  - **High speed (50-55mph) versus Conus convoy speed (40-45 mph)**
  - **Continuous operation (4-6 hours) versus stop every 2 hours**

Observations

- **Severe dust and roughness conditions on MSR Tampa**
  - **Vehicles running 40-45 mph in severe dust and 65 miles of rough road equivalent to level cross country**
  - **Roughness and speed not represented in any prior HET testing or operations**
  - **Lack of road shoulders causes right side of trailer to be exposed to potholes (6 inches deep) at 45-50 mph**
- **Ops require trucks to run at maximum speed in very tight convoy resulting in continued severe dust exposure. The problem still exists**

Observations

- **Oil and air filters not available during initial heavy push**
  - **10000 – 25000 miles of service of severe dust operations without oil or air filter change**
  - **Truck engines showing high oil consumption (3-7 gallons per 1000 miles)**
  - **Fuel consumption increasing**
  - **Trucks experiencing loss of power**
  - **Logistics shortfall means damage to engines already done**
  - **15 engines replaced, 15 engines on order awaiting replacement, more than 50% of the fleet reporting loss of power in 96 truck company**
  - **Oil, filters, alternators and belts still in short supply**
- **Engine damage is continuing and will require replacement or rebuild**

Observations

- **Insufficient downtime for maintenance**
  - **Lubrication service occurring every two to four weeks**
  - **Air and oil filter replacements still not regularly available to support two week service**
  - **Maintenance personnel required to perform multiple tasks including convoy support and guard duty**
  - **Maintenance personnel work 12 hour non maintenance shifts and then return to motor pool to work on vehicles**
  - **Insufficient experienced staff. Non maintenance personnel with civilian experience used to supplement**
  - **Lack of training contributing to vehicle failures**

Observations

- **Units which performed 5 year maintenance prior to deploying faring much better than those who did not**
- **Good running HETs keep running regardless**
- **Missions are run with non operational components including failed alternators, non functional CTIS, partially functional brake systems, etc**

Observations

- **HETS are tasked for missions more traditionally assigned to M915's including porta johns, NTVs, and retrograde material**
  - **Empty and lightly loaded trailers bouncing severely on MSR Tampa**
  - **Trailer design not previously evaluated for high mileage lightly loaded operations on rough roads.**
- **HET mileages are high**
  - **2nd HETS 30,000-50,000 miles**
  - **11th HETS 24,000 miles**
  - **4th ID 704th HETS 20,000-25,000 miles**
  - **1083rd HETS 20,000-25,000 miles**
  - **1498th HETS 20,000-45,000 miles**
  - **287th HETS 22,000 miles**
- **M915 mileage (846th) is less than 10,000 miles**

Observations

- **CTIS system not being used on rough road conditions, HET tractors are operated at highway tire pressure**
- **Severe wear and tear not limited to tractors. Trailers experiencing worn out king pins, wear plates and suspension struts. Wear to the point where gooseneck replacement is required**
- **HET trailer struts and spindles now an issue**
- **HET trailer fires- 6 at DRMO due to brake drag, additional failed trailers at Tikrit, 3 observed on MSR Tampa, more reported but not observed**
- **10% of tires at DRMO failed due to brake lock up**

Observations

- **Severe dust observed in many cabs of trucks. Dust, humidity and high temperatures contributing to in cab component and subsystem failures.**
- **Ops scenarios continue to require trucks to run at maximum speed in very tight convoy resulting in continued severe dust exposure.**
- **The problem observed with severe dust exposure still exists**
- **Fuel quality with JP-8 an issue in early operations, fuel mixing performed by some units**
- **The observations made at the 180th trans con are no different than those made at the 32nd trans con. Challenge is theatre wide.**
- **HETS are rapidly using up available life. Action required to save the fleet**

Observations

- **Major Hofer XO & SFC Forbes of 180th have clear understanding of issues. Their tracking systems for parts plus efforts for sharing information and training considered excellent**
- **Lt Win Nugent convoy commander and Sgt Jacques Greer of 1083rd providing maximum effort to insure mission completion. Pre, post and during ops checks. Lt Nugent insured replacement of separated steering axle tire preventing tire blowout and potential loss of control.**
- **These maximum efforts are occurring throughout the theatre - everyday.**
- **National Guard and Reserve units are developing innovative solutions and work arounds. Lack of parts causing trucks to be run which would normally be deadlined.**

Recommendations

- **Improve HET mission tasking to preserve remaining life of vehicles. Insure M915-M871/M872 are used appropriately. Provide loading ramps/ loading docks to aid in off load**
- **Establish forward DRMO or CAN point to reduce backhaul of junk**
- **Establish Heavy Fleet “Jiffy Lube” plus at TIKRIT**
  - **Run by staff knowledgeable with HETS/PLS/HEMTT systems**
  - **Identify other issues during convoy downtime**
  - **Brake adjustment/Tire repair/belt replacement**

Recommendations

- **Provide experienced contact team to support training. Get more experts in theater**
- **Continue awareness of maintenance requirements. No prior experience with this op tempo or environment**
- **Insure that any new units have completed 5 year maintenance prior to deployment in theatre**
- **Insure current training for multiple staff in logistics and maintenance prior to deployment**
- **Insure units have filters, belts, alternators, spare oil and seals prior to deployment (Adjust ASL/PLL)**
- **Insure units know scale of op tempo, 3000-4000 miles per month**
- **Increase awareness of proper use of tractor central tire inflation system. Can reduce maintenance by factor of 2 or more**

Recommendations

- **Insure all operators have current training in HETS, particularly trailer hydraulic system operations**
- **Continue to work logistics, insure that filters and oil are available to support full service. Air cleaners require replacement more often**
- **HET engines will continue to fail. Development of forward engine rebuild would represent a cost savings**
- **Air compressor and pumps share the same oil reservoir as the engine and would benefit from similar rebuild**
- **Repetitive M1000 tire failures will continue due to high pressure and road debris – Provide turnbuckle or similar system to allow rapid raising / isolation of bogies**

Recommendations

- **Dust intrusion into cab of HETS is contributing to premature failures. Installation of A/C kits will reduce maintenance and driver errors which result in component failures and accidents. This will be critical for summer operations**
- **Provide A/C service capability to units, charge and evacuate systems for servicing 134a refrigerant**
- **Increase priority of maintenance on MSR Tampa, oil road to reduce dust conditions**
- **Forward tire repair capability at multiple locations**
- **Desert filter kits with prefilter should be installed to reduce dust ingestion.**

Observations

HMMWV

- **HMMWVs overloaded to provide soldier protection**
  - **Sandbags, steel plate, wood etc.**
  - **Overloaded by 500-2000 pounds**
  - **Increased tire wear/ component failures including engines (14,000 tires inspected at DRMO)**
  - **Radial tires exhibit severe shoulder wear and wear out**
  - **Bias tires exhibit wear out**
  - **No significant severe heat failures observed (<2%)**
  - **No substantial evidence of bias tire sidewall failure**
  - **Evidence of high mileage highway operations**

Observations

- **HMMWV op tempo high, continuous maximum speed operations at overload conditions**
  - **Mileage accumulation very high (70,000 miles on some MP units)**
  - **Tire failures due to wear out and puncture are primary mode of failure**
  - **Some tires being repaired, others not repaired and sent to DRMO**

Observations

- **Soldier modification kits, increased continuous operational speed and overload are a reality of this mission environment**
- **Soldier modification kits are installed by many different units on every vehicle in the fleet used for convoy operations**
  - **Kits installed on all types of HMMWVs**
  - **7700# GVW HMMWVs are most heavily overloaded**
  - **A few soldier modifications increase risk to personnel – kits are developed using any available materials – no available guidelines**

Observations

- **Unit tradesmen completing well thought out sustainable solutions**
  - **CW03 Norman May 317th 7th CSG at Camp Anaconda has developed solutions for HMMWV, 5 ton and PLS**
  - **Attempting to order armor plate from Turkey**
  - **Located armored hatch covers from Russian BMPs and converted to armor kits for various vehicles**
  - **Testing solutions to confirm function (7.62mm, 5.56mm, etc)**
  - **Capability exists at Anaconda, Tallil, Spiecher, and Arifjan. Additional equipment needed at Tikrit to enable fabrication**

Observations

- **Primary mission operation is paved road. Cross country operations are relatively low depending upon the area and unit. Mobility in sand is not a primary concern for most units**
- **HMMWV Service Center will help sustain HMMWV fleet and could be used for armor kit installations depending upon the complexity of the kit.**
- **Due to long distances all HMMWVs are carrying spare tires. Tires are installed on roofs, inside vehicles etc.**
- **Repetitive failures of fuel pumps and alternators**
- **Insufficient filters and consumable parts available. Dust in engines is common. Additional engine failures anticipated.**

Recommendations

- **Identify modifications to convert light HMMWVs to heavy HMMWVs (Heavy duty springs/suspensions)**

- **Develop spares so units can convert suspensions as necessary to support soldier modified HMMWV until sufficient armored HMMWVs in theater**
  - **Insure engine and drive train replacement availability**
  - **Develop generator repair/service capability forward**
  - **Provide multiple tire repair points and LAV style tire repair kits for each unit**

Recommendations

- **Insure all HMMWVs shipped used for convoy, MP and similar mission are heavy HMMWV version**

- **Develop recommended guidelines for “gun trucks”. Provide expert contact teams to provide guidance and improve gun truck protection**

- **Make M-2 soft recoil mount available to reduce structural impact during weapons firing**

Recommendations

- **Provide HMMWV spare tire mount for all vehicles. Swing away to provide access to the rear of the vehicle is preferred.**
- **Repetitive HMMWV tire mounts and dismount; high mileage and overload resulting in wheel stud failures. HMMWV wheels will be sent back for fatigue analysis to determine additional spares requirements. HMMWV wheel failures may be future issue**
- **Use of Super Swamper Tire is NOT recommended for the primarily high speed paved road operations observed from Tikrit to Dogwood to Baghdad to Navistar. Other areas/missions not evaluated.**

Observations

Miscellaneous Observations

- **National Guard Units have not deployed with special tools and other equipment necessary to support vehicles. This reduces maintenance effectiveness. Electronic troubleshooting equipment is needed immediately**
- **Some trucks reported as operationally ready would normally be deadlined**
  - **Issues are much more serious than cracked windshields**
- **M915s are failing springs and suspension components. Higher speed, heavy load over rough degraded pavement and gravel roads is primary cause**
- **Prepositioned equipment generally faired worse than unit provided equipment**

Observations

- **M1088 (FMTV tractors) developing frame failures during high mileage highway operations. MWO is available for frame reinforcement and should be installed for all convoy vehicles**
  - **Failing rear main seals, insufficient tools to replace**
  - **No current practical way to provide soldier protection in cab, too heavy for cab tilt mechanism**
  - **Repetitive radiator failures (cracking bottom tank)**
  - **Inability to get data stream to trouble shoot engine due to lack of necessary electronic readers**
  - **Battery location causes acid to drip down on air tanks resulting in repetitive failures**
  - **Engine electronic protection system causes engine to derate due to engine oil condition. During convoy operations truck may slow substantially putting soldiers at risk. Requires engine oil replacement. Engine oil and filters not regularly available.**
  - **Chief Rogers of 1032nd trans con (Virginia) is keeping trucks running despite amazing challenges.**

Observations

- **Lack of maintenance and severe heat and dust conditions contributing to other system failures**
  - **Generators run 24 hours per day, should be serviced every 10 to 30 hours based on conditions, get serviced possibly once a month due to lack of parts and insufficient personnel**
- **64th FSB supports 60 PLS vehicles but has no ProLink electronic reader to complete necessary maintenance**